

Date: Thursday, 7/20/2006 1:10:57 PM
 User: Linda Lacelle

Process Sheet

Customer : CU-DAR001 Dart Helicopters Services	Drawing Name : SKID TUBE ASSEMBLY
Job Number : 28000A	
Estimate Number : 10023	
P.O. Number : N/A	Part Number : D205634041
This Issue : 7/20/2006 S.O. No. : N/A	Drawing Number : D2580 REV C
Prsht Rev. : NC	Project Number : N/A
First Issue : 7/20/2006 Type : LANDING GEAR	Drawing Revision : C
Previous Run : 27999A	Material : N/A
Written By : <u> </u>	Due Date : 8/20/2006 Qty: 1 Um: Each
Checked & Approved By : <u> </u>	
Comment : Est Rev:N 02.08.28 FP was QC5 in Step 27; Added QC5 to Step 30 KJ	
Est Rev. O 06.02.28 Added paperwork EC	

Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
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1.0	D25001190	Ext'n -I' Beam Tube 4"
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Comment: Qty.: 1.0400 Each(s)/Unit Total : 1.0400 Each(s)

Pick:

Qty	Part Number	Description	Batch
1	D2500-1-190	Skid Tube Extrusion	B24669 RT 06-08-15

2.0	DC	DOCUMENT CONTROL
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Comment: DOCUMENT CONTROL

Photocopy D205-634 bluefile & type labels per PPP D205-634 CHG001

RT 06.07.29

3.0	D2596	205 Web
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Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
1	D2596	205 Web	B28025 RT 06-08-24

4.0	LANDING GEAR 1	LANDING GEAR RESOURCE 1
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Comment: LANDING GEAR RESOURCE 1

1- Inspect mat'l D2500-1-190 for damage RT 06-08-15

2-Cut D2500-1-190 per Dwg D2580 if necessary Deburr ends RT 06-08-15

3-Drill pilot holes using drill jig DT 8149 RT 06-08-15

4-Acid etch and Alodine tube per QSI 005 4.1 RT 06-08-17

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE		By	Date	Qty	Approval Mfg / Design Mgr	Approval QC Inspector

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action			Verification Section C	Approval Design Mgr	Approval QC Inspector
			Initial Design Mgr	Action Description Design Mgr	Sign & Date			

Part No: _____ PAR #: _____ Fault Category: _____

NOTE: Date & initial all entries

NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

Date: Thursday, 7/20/2006 1:10:58 PM
User: Linda Lacelle

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: SKID TUBE ASSEMBLY

Job Number: 28000A

Part Number: D205634041

Job Number:



Seq. #:

Machine Or Operation:

Description :

5-Open holes to 0.500" as per Dwg D2580 without cutting fluid

fm 06-08-170

6-Countersink holes as per Dwg D2580 without cutting fluid

fm 06-08-170

7-Deburr and blow out all chips from inside of tube

fm 06-08-170

8-Bond web in place per QSI 015. Allow 12 Hrs. cure time before cutting

Pick:

Qty Part Number Description Batch

A/R Sikaflex-291 *M101855*

Sikaflex expire date: *07-02-01*

Start Time: *2:00 pm*

Fin Time: *7:00 am 06-08-25*

JE 06-08-24

5.0

BENDING

BENDING MACHINE



Comment: BENDING MACHINE

1-Bend as per program D2580.C on CNC Bender and Folio FT009

2-Cut tubes as per Dwg. D2580

> DP 6-8-29

6.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Deburr ends after cutting. Remove alodine from around holes

fm 06-08-300

7.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

8.0

D25763

Step (Machining Detail)



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Pick:

Qty Part Number Description Batch

1 D2576-3

Step

223060

JE 06-08-31

W/O:		WORK ORDER CHANGES							
DATE	STEP	PROCEDURE CHANGE		By	Date	Qty	Approval Mfg / Design Mgr	Approval QC Inspector	

NCR:		WORK ORDER NON-CONFORMANCE (NCR)							
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Part No: _____ PAR #: _____ Fault Category: _____

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Date: Thursday, 7/20/2006 1:10:58 PM
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Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: SKID TUBE ASSEMBLY

Job Number: 28000A

Part Number: D205634041

Job Number:



Seq. #:

Machine Or Operation:

Description :

9.0

D2579

Crossbolt Spacer



Comment: Qty.: 20.0000 Each(s)/Unit Total: 20.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
20	D2579	Spacers	B 27167 BE 06-08-31

10.0

LARGE FAB 1

LARGE FABRICATION RESOURCE 1



Comment: LARGE FABRICATION RESOURCE 1

1-Prepare tube for welding D2576-3 StepRemove alodine as required. BE 06-08-31

2-Weld step D2576 as per Dwg. D2580 and QSI 004

A/R

Aluminum Rod

m101655 BE 06-08-31

3-Weld crossbolt spacers D2579 as per Dwg. D2580 and QSI 004. For D2579 spacers, weld one side, pass 3/8" drill, weld other side, pass 3/8" drill

A/R

Aluminum Rod

m101655 BE 06-08-31

4-Grind welds as per Dwg D2580 Grind flush ridge made from bending

5-Drill holes for wearplates using DT 8217Open holes to 19/64", adjust stopper not to hit web. Deburr

6-Counterbore crossbolt spacers to 7/16" ID x 1.0" deep as per Dwg D2580. Deburr holes

7-Drill pilot holes for aft cap using DT 8215Open holes to #6 Drill bit. Deburr

8-Drill pilot holes for Tow ring using DT8091, open to .640"and Deburr

Pm
06-08-01

11.0

QC5/9

WELD INSPECTION



Comment: WELD INSPECTION

Inspect weld and Counterbore work to Step 20

06-09-08 ①

06/09/08 ①

12.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Powder Coat White (Ref: 4.3.5.2) as per QSI 005 4.3

P.M. 06-09-11

①

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE		By	Date	Qty	Approval Mfg / Design Mgr	Approval QC Inspector

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action		Sign & Date	Verification Section C	Approval Design Mgr	Approval QC Inspector
			Initial Design Mgr	Action Description Design Mgr				

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

NOTE: Date & initial all entries

QA: N/C Closed: _____ Date: _____

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Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: SKID TUBE ASSEMBLY

Job Number: 28000A

Part Number: D205634041

Job Number:



Seq. #:

Machine Or Operation:

Description :

13.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

FL 06 09 12 (1)

14.0

D25771

Wearplate Fwd



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
1	D2577-1	Wearplate	326350

15.0

D25773

Wearplate Aft



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
1	D2577-3	Wearplate	B26058

16.0

D25775

Wearplate, Centre



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
1	D2577-5	Wearplate	B24119 B24878 B24878

G

17.0

ALS71032130

Insert



Comment: Qty.: 44.0000 Each(s)/Unit Total : 44.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
44	ALS7-1032-130	Inserts	1414393

18.0

AN960JD10L

Washer



Comment: Qty.: 44.0000 Each(s)/Unit Total : 44.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
44	AN960JD10L	Washer	m100233

a.m 06-09-12 (1)

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE		By	Date	Qty	Approval Mfg / Design Mgr	Approval QC Inspector

NCR:		WORK ORDER NON-CONFORMANCE (NCR)							
DATE	STEP	Description of NC Section A	Corrective Action		Section B		Verification Section C	Approval Design Mgr	Approval QC Inspector
			Initial Design Mgr	Action Description Design Mgr	Sign & Date				

Part No: _____ PAR #: _____ Fault Category: _____

NOTE: Date & initial all entries

NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

Date: Thursday, 7/20/2006 1:10:58 PM
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Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: SKID TUBE ASSEMBLY

Job Number: 28000A

Part Number: D205634041

Job Number:



Seq. #:

Machine Or Operation:

Description :

19.0

AN34A

Bolt



Comment: Qty.: 44.0000 Each(s)/Unit Total : 44.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
44	AN3-4A	Bolt	m101697

20.0

D25941

Plug



Comment: Qty.: 16.0000 Each(s)/Unit Total : 16.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
16	D2594-3	O-RING	324104

21.0

D25943

O-Ring



Comment: Qty.: 16.0000 Each(s)/Unit Total : 16.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
16	D2594-1	Plug	B26364

22.0

D2855

Cap



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Cap

Batch: B26351

23.0

AN35A

Bolt



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Bolt

Batch: m15205

24.0

AN960JD10L

Washer



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Washer

Batch: m100233

m

06-09-13

(1)

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE		By	Date	Qty	Approval Mfg / Design Mgr	Approval QC Inspector

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action			Verification Section C	Approval Design Mgr	Approval QC Inspector
			Initial Design Mgr	Action Description Design Mgr	Sign & Date			

Part No: _____ PAR #: _____ Fault Category: _____

NOTE: Date & initial all entries

NCR: Yes ☒ No ☐ DQA: ☒ ☐ Date: 06/09/19
QA: N/C Closed: _____ Date: _____

Date: Thursday, 7/20/2006 1:10:58 PM
User: Linda Lacelle

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: SKID TUBE ASSEMBLY

Job Number: 28000A

Part Number: D205634041

Job Number:



Seq. #:	Machine Or Operation:	Description :
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25.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

1-Install inserts & wearplates as per Dwg. D2580. Use a drop of Sikaflex on insert holes before installing wearplates

A/R Sikaflex-291 *M101952*

Sikaflex expire date: *05-21-06*

2-Coat D2594-3 O' rings with Petroleum Jelly and install on D2594-1 plugs as per Dwg D2580

3-Inspect for foreign object per QSI 024

4-Install 2855 Aft Cap as per Dwg D2580 and seal Fwd Step & Aft Cap with Sikaflex. Clean excess adhesive

A/R Sikaflex-291 *M101952* *a.m. 06-09-13* *(1)*

Sikaflex expire date: *10-21-06*

5-Wing Walk as per Dwg D2580 and QSI 005 4.4

M101667

Batch:

FC 06 09 13 (1)

26.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: Inspect Aft Cap, Fwd Step and Wing Walk of work to Current Step Inspect for Foreign objects per QSI 024

27.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and pack for shipping as per PPP D205-634-041

Location: *MA*

PPP Rev: *MA*

28.0

DC

DOCUMENT CONTROL



Comment: DOCUMENT CONTROL

Inspection Level 21

06 09 13 (1)

Job Completion



06 09 13

W/O:		WORK ORDER CHANGES							
DATE	STEP	PROCEDURE CHANGE		By	Date	Qty	Approval Mfg / Design Mgr	Approval QC Inspector	

NCR:		WORK ORDER NON-CONFORMANCE (NCR)							
DATE	STEP	Description of NC Section A	Corrective Action			Verification Section C	Approval Design Mgr	Approval QC Inspector	
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Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

NOTE: Date & initial all entries

QA: N/C Closed: _____ Date: _____



DESIGN <i>[Signature]</i>	DRAWN BY <i>[Signature]</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>[Signature]</i>	APPROVED <i>[Signature]</i>	DRAWING NO. D2580	REV. C SHEET 1 OF 2
DATE 98.08.26		TITLE 205 SKIDTUBE ASSEMBLY	SCALE NTS
A	96.09.16	NEW ISSUE	
B	96.12.02	AS MANUFACTURED	
C	98.08.26	REDRAWN, INCLUDED DEO 9094/9097	

RELEASED
98/09/17 DS

QTY	Part Number	Description
X	D2580-041	SKIDTUBE ASSEMBLY
*	D2500-1	EXTRUSION
1	D2596	205 WEB
1	D2575	AFT CAP
1	D2576 - 3	STEP
20	D2579	CROSS BOLT SPACER
16	D2594-1	PLUG
16	D2594-3	O-RING
1	D2577-1	WEARSHOE
1	D2577-3	WEARSHOE
1	D2577-5	WEARSHOE
44	ALS7-1032-130 or AKS7-1032-130 or AKS4-1032-130 or ALS4-1032-130	INSERT
46	AN3-4A	BOLT
46	AN960JD10L	WASHER

00.08.28
UP 00.08.28

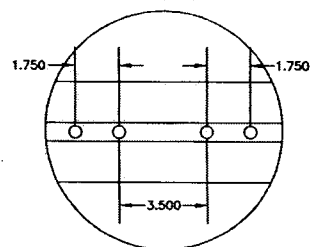
EFFECTIVE DEOS
98/12/14
DEO 9124
DEO 9183

GENERAL NOTES:

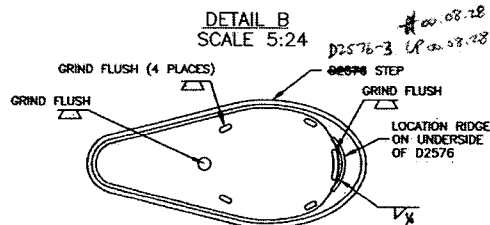
- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 2) LENGTH OF D2500-1 EXTRUSION BEFORE BENDING = 190 INCHES *
- 3) INSERT D2596 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241 ADHESIVE PER DART QSI 015 BEFORE BENDING. ENSURE HOLES LINE-UP.
- 4) BEND AS A SMOOTH RADIUS STARTING WITH A MAXIMUM CENTERLINE RADIUS OF 60 AND ENDING WITH A MINIMUM RADIUS OF 30. A MAXIMUM REDUCTION OF 0.200 IN DIAMETER IS ALLOWABLE IN THE BENT PORTION OF THE TUBE.
- 5) USE DART DRILL TEMPLATE TD2577-205 TO LOCATE AND DRILL Ø0.297 HOLES FOR WEARSHOE INSERTS. INSTALL ALS7-1032-130 PER SECTION D-D (44 PLACES) AFTER FINISH. INSTALL AN3-4A BOLTS AND AN960JD10L WASHERS WITH SIKAFLEX-241.
- 6) WELDING TO BE DONE PER DART QSI 004.
- 7) FINISH:
ACID ETCH, ALODINE PER DART QSI 005 4.1 PRIOR TO INSERTING D2596 WEB
POWDER COAT ASSEMBLY GLOSS WHITE (REF 4.3.5.1) PER DART QSI 005 4.3
BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4
- 8) INSERT D2594-1 PLUG C/W D2594-3 O-RING IN HOLES MARKED 'P' (BOTH SIDES OF TUBE) AFTER FINISH (16 PLACES).

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 28000A

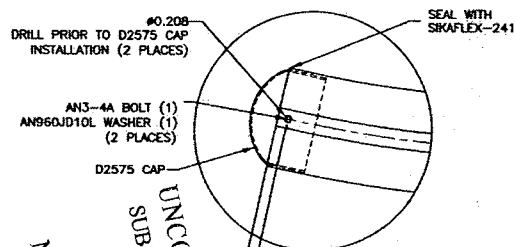
DETAIL A
SCALE 5:24



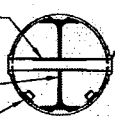
DETAIL B
SCALE 5:24



DETAIL C
SCALE 5:24

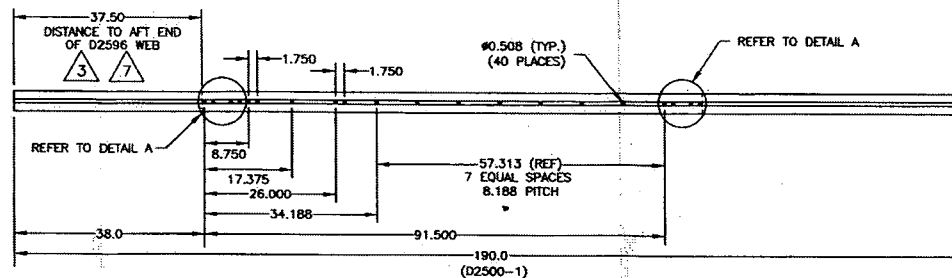


SECTION D-D
SCALE 5:24

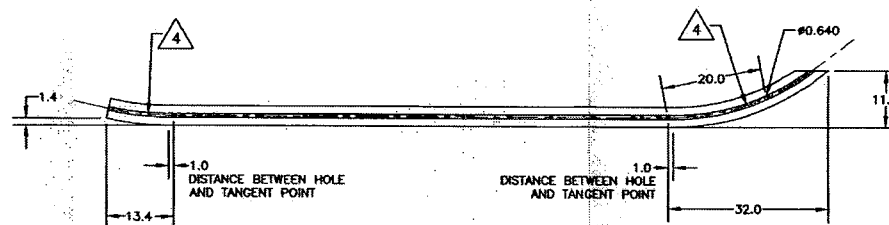


AFTER DRILLING AND BENDING ASSEMBLY
PERFORM THE FOLLOWING FOR #0.508 HOLES ONLY:
1. CHAMFER HOLE 0.050 X 45°
2. INSERT D2579 SPACER (20 PLACES)
3. WELD INTO PLACE AND GRIND FLUSH
4. C-BORE D2579 SPACER TO #0.437 X 1.00 DEEP

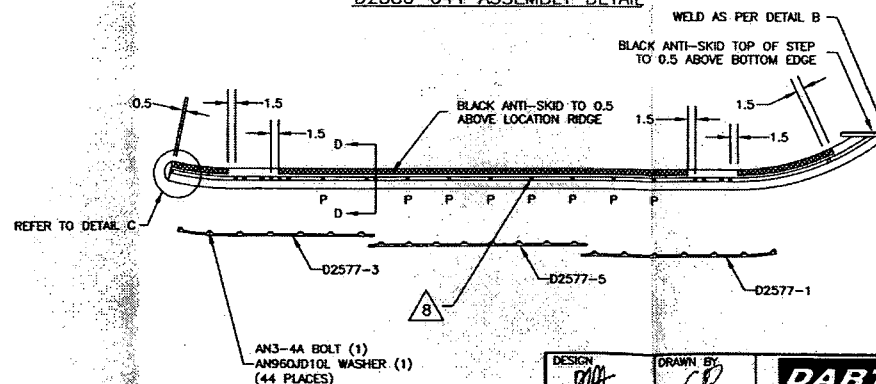
D2580-1 DRILLING DETAIL



D2580-1 BENDING AND CUTTING DETAIL

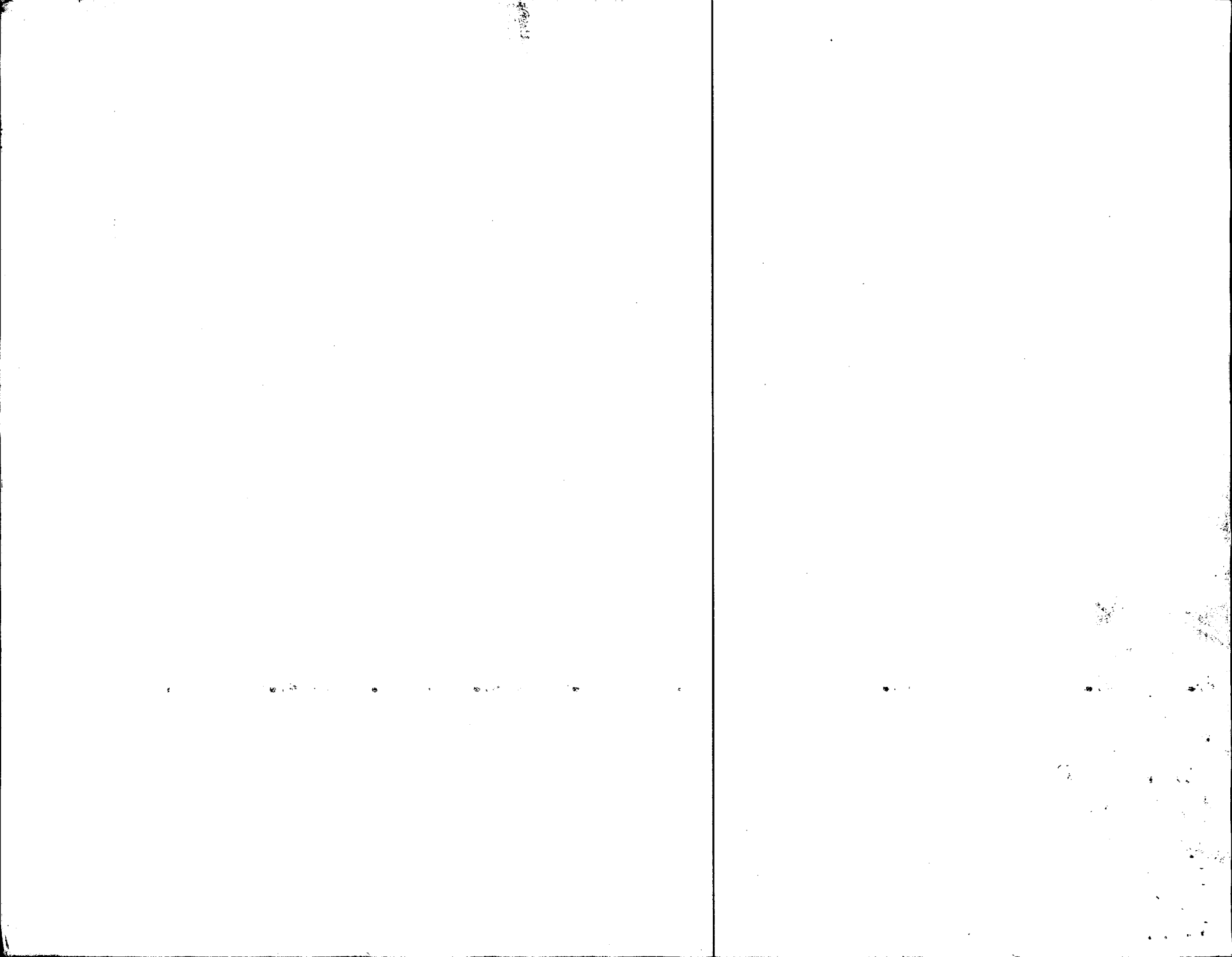


D2580-041 ASSEMBLY DETAIL



RELEASED
98/09/17 DS

DESIGN DART	DRAWN BY DART	DART AEROSPACE LTD HARRISBURG, ONTARIO, CANADA	REV. C
CHECKED DART	APPROVED DART	DRAWING NO. D2580	SHEET 2 OF 2
DATE 98.08.26	TITLE 205 SKIDTUBE ASSEMBLY	SCALE 1:24	



NO. 1

AWS D17.1.2001
QUALIFICATION TEST RECORD

Name Barelay Elliott
Joint Welding Procedure Tig
Part number and Job number A205 34041 / B280006A

TEST WELDS REQUIRED

BASE METAL Alum WELDING PROCESS Tig
Penetration Complete ☐ Partial ☒ Single Weld ☒ Double Weld ☐
Current AC ☒ DC ☐ Backing YES ☐ NO ☒

	Position	Vertical	Down <input type="checkbox"/>	Up <input type="checkbox"/>
Sheet Groove	1G <input type="checkbox"/>	2G <input type="checkbox"/>	3G <input type="checkbox"/>	4G <input type="checkbox"/>
Tube Groove	1G <input type="checkbox"/>	2G <input type="checkbox"/>	5G <input type="checkbox"/>	6G <input type="checkbox"/>
Sheet Fillet	1F <input type="checkbox"/>	2F <input type="checkbox"/>	3F <input type="checkbox"/>	4F <input type="checkbox"/>
Tube Fillet	1F <input type="checkbox"/>	2F <input type="checkbox"/>	4F <input type="checkbox"/>	5F <input type="checkbox"/>

Crossbolt Spacer Welded into 205 Skidtube

TEST RESULTS

Visual Pass ☒ Fail ☐
Penetration Pass ☒ Fail ☐
Crossbolt Spacer Pass ☒ Fail ☐

The above named individual is qualified in accordance with AWS D17.1.2001 to weld

Date of Test Coupon 06/09/01 Qualifier David David

